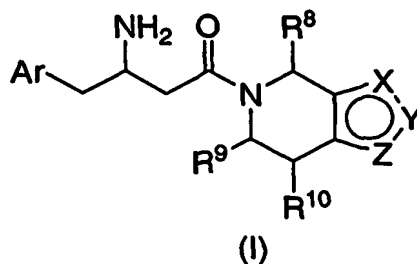


WHAT IS CLAIMED IS:

1. A compound of structural formula I:



- 5 or a pharmaceutically acceptable salt thereof; wherein each n is independently 0, 1, or 2;

X, Y and Z are independently selected from the group consisting of:

- 10 (1) CR¹,
 (2) NR²,
 (3) N,
 (4) O, and
 (5) S;

- 15 with the provisos that at least one of X, Y and Z is not CR¹ and two of X, Y, and Z cannot be O and/or S;

Ar is phenyl substituted with one to five R³ substituents;

- 20 each R¹ is independently selected from the group consisting of
 hydrogen,
 halogen,
 hydroxy,
 cyano,

- 25 C₁-10 alkyl, wherein alkyl is unsubstituted or substituted with one to five substituents
 independently selected from halogen or hydroxy,
 C₁-10 alkoxy, wherein alkoxy is unsubstituted or substituted with one to five substituents
 independently selected from halogen or hydroxy,

C₁₋₁₀ alkylthio, wherein alkylthio is unsubstituted or substituted with one to five substituents independently selected from halogen or hydroxy,

C₂₋₁₀ alkenyl, wherein alkenyl is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, COOH, and COOC₁₋₆ alkyl,

(CH₂)_nCOOH,

(CH₂)_nCOOC₁₋₆ alkyl,

(CH₂)_nCONR⁴R⁵, wherein R⁴ and R⁵ are independently selected from the group

consisting of hydrogen, tetrazolyl, thiazolyl, (CH₂)_n-phenyl, (CH₂)_n-C₃₋₆

cycloalkyl, and C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one

to five halogens and wherein phenyl and cycloalkyl are unsubstituted or

substituted with one to five substituents independently selected from halogen,

hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted

or substituted with one to five halogens;

or R⁴ and R⁵ together with the nitrogen atom to which they are attached form a

heterocyclic ring selected from azetidine, pyrrolidine, piperidine, piperazine, and

morpholine wherein said heterocyclic ring is unsubstituted or substituted with one

to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and

C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one

to five halogens;

(CH₂)_n-NR⁴R⁵,

(CH₂)_n-OCONR⁴R⁵,

(CH₂)_n-SO₂NR⁴R⁵,

(CH₂)_n-SO₂R⁶,

(CH₂)_n-NR⁷SO₂R⁶,

(CH₂)_n-NR⁷CONR⁴R⁵,

(CH₂)_n-NR⁷COR⁷,

(CH₂)_n-NR⁷CO₂R⁶,

(CH₂)_n-COR⁷,

(CH₂)_n-C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,

(CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, cyano, hydroxy, NR⁷SO₂R⁶, SO₂R⁶,

CO₂H, COOC₁₋₆ alkyl, C₁₋₆ alkyl, and

C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,

(CH₂)_n-heteroaryl, wherein heteroaryl is unsubstituted or substituted with one to three substituents independently selected from hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and

(CH₂)_n-heterocyclyl, wherein heterocyclyl is unsubstituted or substituted with one to three substituents independently selected from oxo, hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,

wherein any methylene (CH₂) carbon atom in R¹ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens;

each R² is independently selected from the group consisting of hydrogen,

C₁₋₁₀ alkyl, wherein alkyl is unsubstituted or substituted with one to five substituents independently selected from halogen or hydroxy,

C₂₋₁₀ alkenyl, wherein alkenyl is unsubstituted or substituted with one to five substituents independently selected from halogen or hydroxy,

(CH₂)_nCOOH,

(CH₂)_nCOOC₁₋₆ alkyl,

(CH₂)_nCONR⁴R⁵, wherein R⁴ and R⁵ are independently selected from the group consisting of hydrogen, tetrazolyl, thiazolyl, (CH₂)_n-phenyl, (CH₂)_n-C₃₋₆ cycloalkyl, and C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one to five halogens and wherein phenyl and cycloalkyl are unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens;

or R⁴ and R⁵ together with the nitrogen atom to which they are attached form a heterocyclic ring selected from azetidine, pyrrolidine, piperidine, piperazine, and morpholine wherein said heterocyclic ring is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy,

(CH₂)_nCOOC₁₋₆ alkyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens or one phenyl;
(CH₂)_n-COR⁷,
(CH₂)_n-SO₂NR⁴R⁵,
5 (CH₂)_n-SO₂R⁶,
(CH₂)_n-C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,
10 (CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, cyano, hydroxy, NR⁷SO₂R⁶, SO₂R⁶, CO₂H, C₁₋₆ alkyloxycarbonyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,
15 (CH₂)_n-heteroaryl, wherein heteroaryl is unsubstituted or substituted with one to three substituents independently selected from hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and
(CH₂)_n-heterocyclyl, wherein heterocyclyl is unsubstituted or substituted with one to three substituents independently selected from oxo, hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,
20 wherein any methylene (CH₂) carbon atom in R² is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl
25 unsubstituted or substituted with one to five halogens;

each R³ is independently selected from the group consisting of

hydrogen,

halogen,

30 cyano,

hydroxy,

C₁₋₆ alkyl, unsubstituted or substituted with one to five halogens, and

C₁₋₆ alkoxy, unsubstituted or substituted with one to five halogens;

R⁶ is independently selected from the group consisting of tetrazolyl, thiazolyl, (CH₂)_n-phenyl, (CH₂)_n-C₃₋₆ cycloalkyl, and C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one to five halogens and wherein phenyl and cycloalkyl are unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy,

5 wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and wherein any methylene (CH₂) carbon atom in R⁶ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, C₁₋₄ alkyl, and C₁₋₄ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens;

10 each R⁷ is hydrogen or R⁶;

R⁸, R⁹ and R¹⁰ are each independently selected from the group consisting of
hydrogen,

cyano,

15 (CH₂)_nCOOH,
(CH₂)_nCOOC₁₋₆ alkyl,

C₁₋₆ alkyloxycarbonyl,

C₁₋₁₀ alkyl, unsubstituted or substituted with one to five substituents independently
selected from halogen, hydroxy, C₁₋₆ alkoxy, and phenyl-C₁₋₃ alkoxy, wherein
20 alkoxy is unsubstituted or substituted with one to five halogens,

(CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents
independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy,
wherein alkyl and alkoxy are unsubstituted or substituted with one to five
halogens,

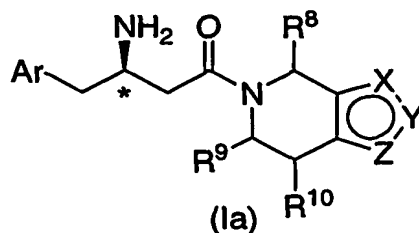
25 (CH₂)_n-heteroaryl, wherein heteroaryl is unsubstituted or substituted with one to three
substituents independently selected from hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆
alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five
halogens,

(CH₂)_n-heterocyclyl, wherein heterocyclyl is unsubstituted or substituted with one to
three substituents independently selected from oxo, hydroxy, halogen, C₁₋₆ alkyl,
30 and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with
one to five halogens,

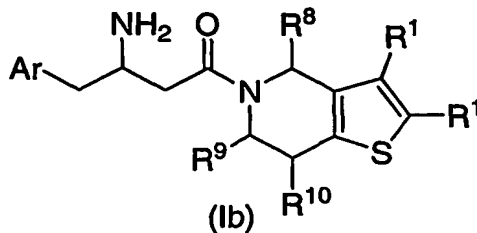
(CH₂)_n-C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to
three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and

C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and
 (CH₂)_nCONR⁴R⁵, wherein R⁴ and R⁵ are independently selected from the group consisting of hydrogen, tetrazolyl, thiazolyl, (CH₂)_n-phenyl, (CH₂)_n-C₃₋₆ cycloalkyl, and C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one to five halogens and wherein phenyl and cycloalkyl are unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens;
 or R⁴ and R⁵ together with the nitrogen atom to which they are attached form a heterocyclic ring selected from azetidine, pyrrolidine, piperidine, piperazine, and morpholine wherein said heterocyclic ring is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, (CH₂)_nCOOC₁₋₆ alkyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens or one phenyl; and
 wherein any methylene (CH₂) carbon atom in R⁸, R⁹ or R¹⁰ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens.

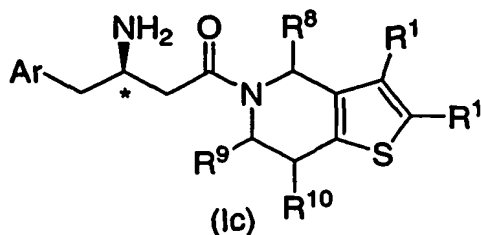
2. The compound of Claim 1 of the structural formula Ia wherein the carbon atom marked with an * has the *R* stereochemical configuration



3. The compound of Claim 1 of the structural formula Ib

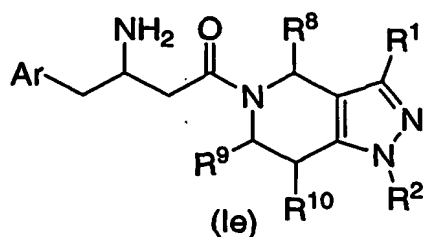


4. The compound of Claim 3 of the structural formula Ic wherein the carbon atom marked with an * has the *R* stereochemical configuration

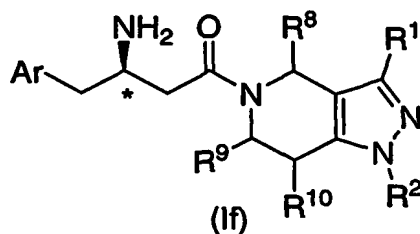


5. The compound of Claim 3 wherein R⁹ and R¹⁰ are hydrogen.

6. The compound of Claim 1 of the structural formula Ie

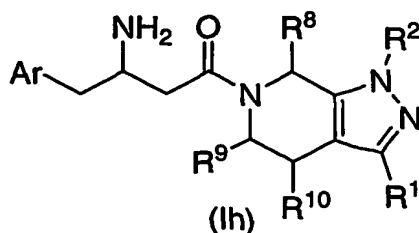


7. The compound of Claim 6 of the structural formula If wherein the carbon atom marked with an * has the *R* stereochemical configuration

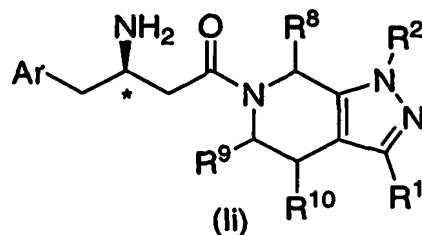


8. The compound of Claim 6 wherein R⁹ and R¹⁰ are hydrogen.

9. The compound of Claim 1 of the structural formula Ih

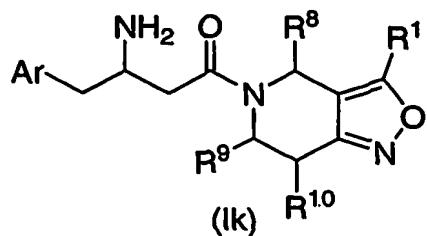


10. The compound of Claim 9 of the structural formula Ii wherein the carbon atom marked with an * has the *R* stereochemical configuration

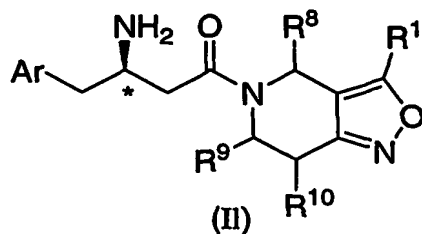


11. The compound of Claim 9 wherein R⁹ and R¹⁰ are hydrogen.

12. The compound of Claim 1 of the structural formula Ik

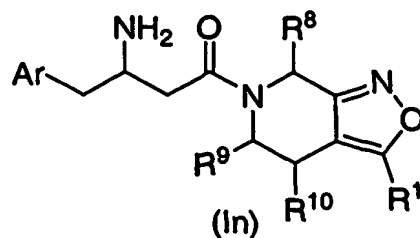


13. The compound of Claim 12 of the structural formula II wherein the carbon atom marked with an * has the *R* stereochemical configuration

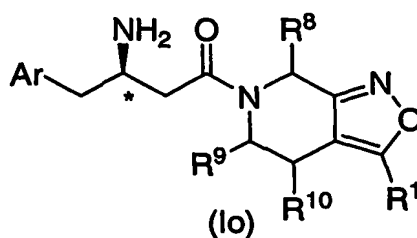


14. The compound of Claim 12 wherein R⁹ and R¹⁰ are hydrogen.

15. The compound of Claim 1 of the structural formula In

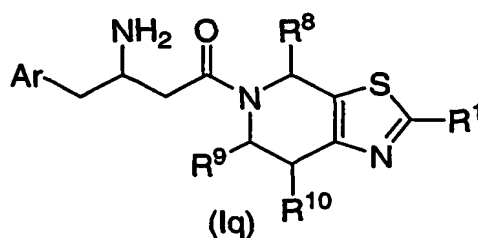


16. The compound of Claim 15 of the structural formula Io wherein the carbon atom marked with an * has the *R* stereochemical configuration

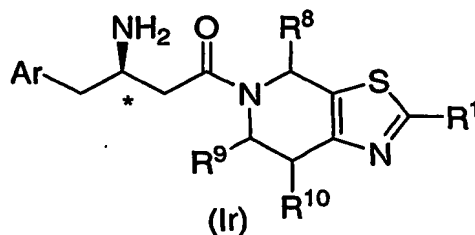


5 17. The compound of Claim 15 wherein R⁹ and R¹⁰ are hydrogen.

18. The compound of Claim 1 of structural formula Iq

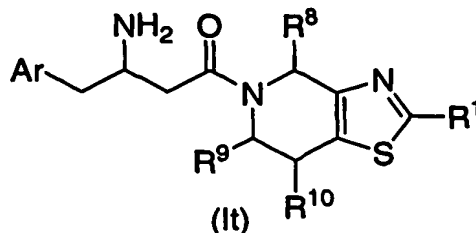


10 19. The compound of Claim 18 of the structural formula Ir wherein the carbon atom marked with an * has the *R* stereochemical configuration

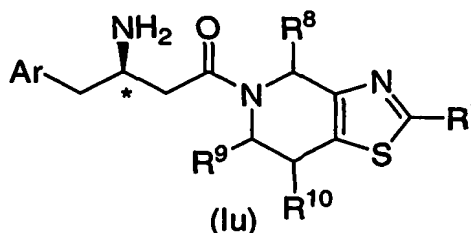


20. The compound of Claim 18 wherein R⁹ and R¹⁰ are hydrogen.

21. The compound of Claim 1 of the structural formula It



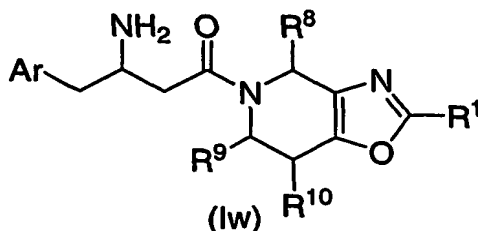
22. The compound of Claim 21 of the structural formula Iu wherein the carbon atom marked with an * has the *R* stereochemical configuration



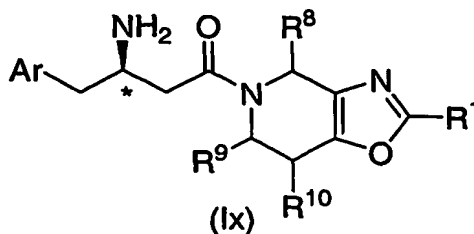
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23. The compound of Claim 21 wherein R⁹ and R¹⁰ are hydrogen.

24. The compound of Claim 1 of the structural formula Iw

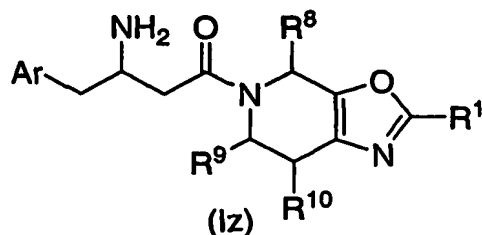


- 10 25. The compound of Claim 24 of the structural formula Ix wherein the carbon atom marked with an * has the *R* stereochemical configuration

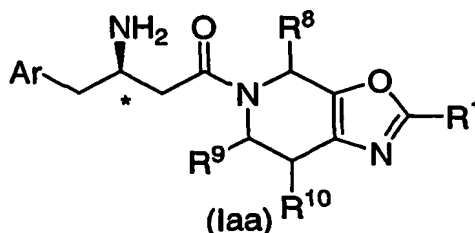


26. The compound of Claim 24 wherein R⁹ and R¹⁰ are hydrogen.

27. The compound of Claim 1 of the structural formula Iz

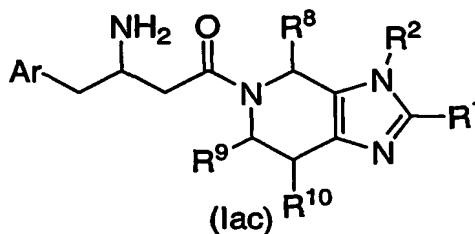


28. The compound of Claim 27 of the structural formula Iaa wherein the carbon atom marked with an * has the *R* stereochemical configuration

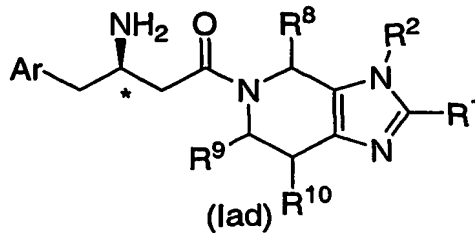


29. The compound of Claim 27 wherein R⁹ and R¹⁰ are hydrogen.

30. The compound of Claim 1 of the structural formula Iac

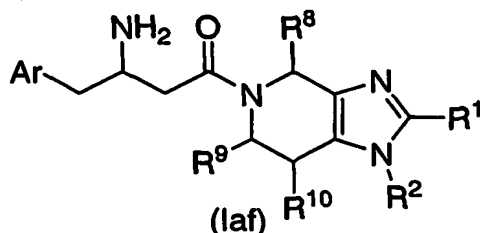


31. The compound of Claim 30 of the structural formula Iad wherein the carbon atom marked with an * has the *R* stereochemical configuration

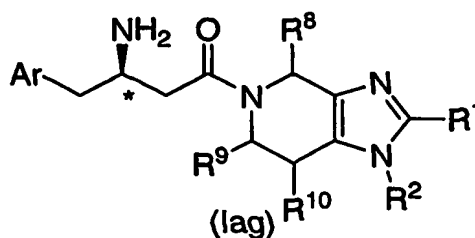


32. The compound of Claim 30 wherein R⁹ and R¹⁰ are hydrogen.

33. The compound of Claim 1 of the structural formula Ia_f

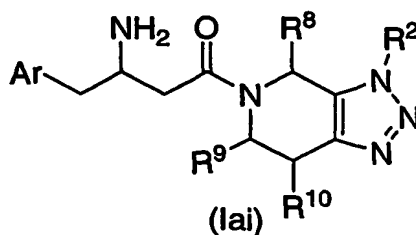


5 34. The compound of Claim 33 of the structural formula Ia_g wherein the carbon atom marked with an * has the *R* stereochemical configuration

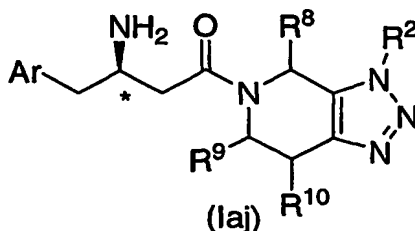


35. The compound of Claim 33 wherein R⁹ and R¹⁰ are hydrogen.

10 36. The compound of Claim 1 of the structural formula Ia_i

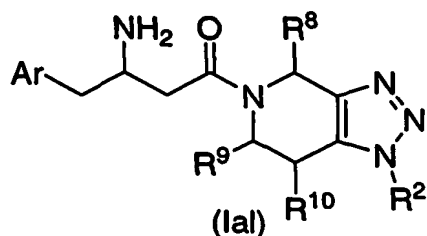


37. The compound of Claim 36 of the structural formula Ia_j wherein the carbon atom marked with an * has the *R* stereochemical configuration

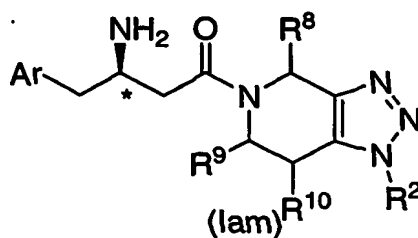


38. The compound of Claim 36 wherein R⁹ and R¹⁰ are hydrogen.

39. The compound of Claim 1 of the structural formula IaI



40. The compound of Claim 39 of the structural formula IaII wherein the carbon atom marked with an * has the *R* stereochemical configuration



41. The compound of Claim 39 wherein R⁹ and R¹⁰ are hydrogen.

42. The compound of Claim 1 wherein R³ is selected from the group consisting of hydrogen, fluoro, chloro, bromo, trifluoromethyl, and methyl.

43. The compound of Claim 1 wherein R¹ is selected from the group consisting of:

hydrogen,

halogen,

hydroxy,

C₁₋₁₀ alkyl, wherein alkyl is unsubstituted or substituted with one to five substituents independently selected from halogen or hydroxy,

C₂₋₁₀ alkenyl, wherein alkenyl is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, COOH, and COOC₁₋₆ alkyl,

(CH₂)_n-C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and

C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and
(CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, cyano, hydroxy, NR⁷SO₂R⁶, SO₂R⁶,
5 CO₂H, COOC₁₋₆ alkyl, C₁₋₆ alkyl, and
C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens; and
wherein any methylene (CH₂) carbon atom in R¹ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl
10 unsubstituted or substituted with one to five halogens;

44. The compound of Claim 43 wherein R¹ is selected from the group consisting of

15 hydrogen,
methyl,
ethyl,
trifluoromethyl,
CH₂CF₃,
CF₂CF₃,
20 phenyl,
4-(methoxycarbonyl)phenyl,
4-fluorophenyl,
4-(trifluoromethyl)phenyl,
4-(methylsulfonyl)phenyl,
25 cyclopropyl,
fluoro,
chloro,
bromo, and
2-(methoxycarbonyl)vinyl.

30 45. The compound of Claim 1 wherein R² is selected from the group consisting of

hydrogen,
C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one to five substituents
35 independently selected from halogen or hydroxy,

(CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, CN, hydroxy, NR⁷SO₂R⁶, SO₂R⁶, CO₂H, COOC₁₋₆ alkyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens; and wherein any methylene (CH₂) carbon atom in R² is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens.

46. The compound of Claim 45 wherein R² is selected from the group consisting of:

hydrogen,
methyl,
CH₂CF₃,
isobutyl,
4-(trifluoromethyl)benzyl, and
4-fluorobenzyl.

47. The compound of Claim 1 wherein R⁸, R⁹, and R¹⁰ are independently selected from the group consisting of:

hydrogen,
C₁₋₁₀ alkyl, unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkoxy, and phenyl-C₁₋₃ alkoxy, wherein alkoxy is unsubstituted or substituted with one to five halogens,

(CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,

(CH₂)_n-C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and

wherein any methylene (CH₂) carbon atom in R⁸, R⁹ or R¹⁰ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens.

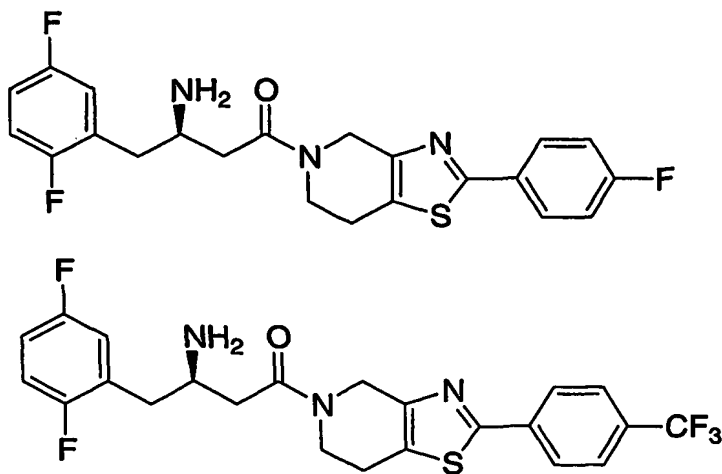
5 48. The compound of Claim 47 wherein R⁸, R⁹, and R¹⁰ are each independently selected from the group consisting of

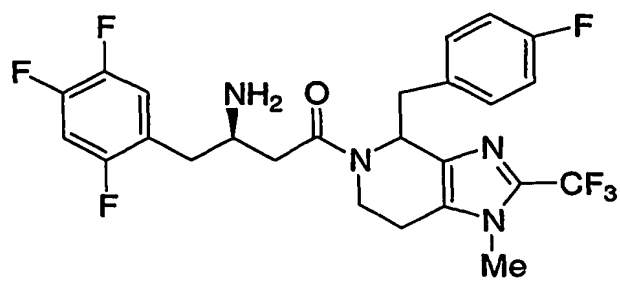
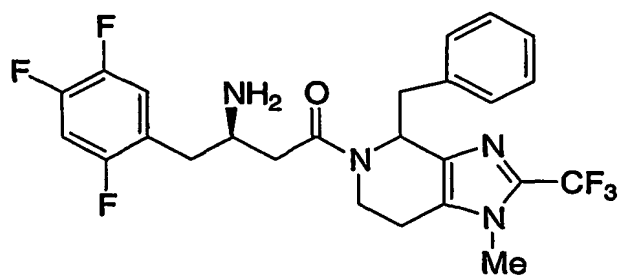
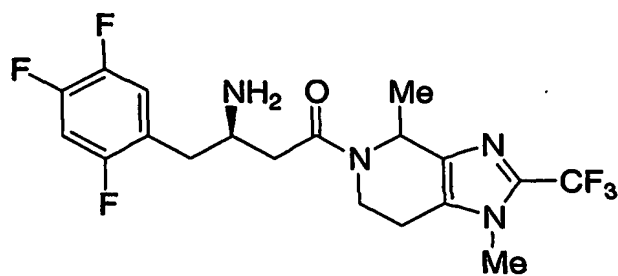
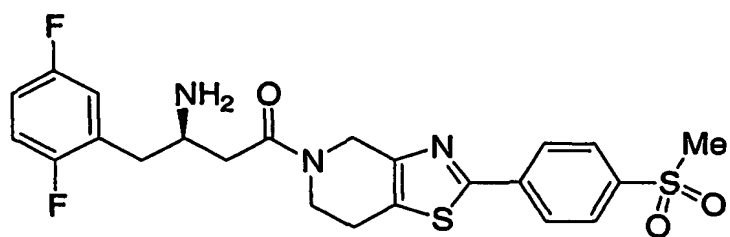
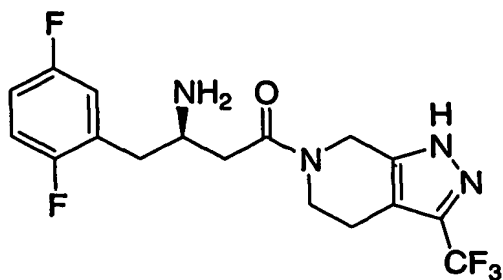
hydrogen,
trifluoromethyl,
methyl,
10 ethyl,
cyclopropyl,
CH₂-Ph, and
CH₂(4-F-Ph).

15 49. The compound of Claim 48 wherein R⁹ and R¹⁰ are hydrogen.

50. The compound of Claim 49 which is selected from the group consisting

of:





;

5 or a pharmaceutically acceptable salt thereof.

51. A pharmaceutical composition which comprises a compound of Claim 1 and a pharmaceutically acceptable carrier.

5 52. Use of a compound in accordance with Claim 1 in the manufacture of a medicament for use in treating a condition selected from the group consisting of hyperglycemia, Type 2 diabetes, obesity, and a lipid disorder in a mammal.

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